

REMARKS

Applicants are in receipt of the Final Office Action mailed December 10, 2007 and Advisory Action mailed March 5, 2008, and have the following remarks.

Rejection of Claims 10-13 pursuant to 35 USC §103(a)

In the final Office Action of December 10th, 2007, Claims 1-4, 8, 9, and 12-22 were rejected as allegedly obvious over U.S. Patent No. 5,942,443, to Parce et al. ("Parce"), in view of U.S. Patent No. 5,837,115 to Austin et al ("Austin").

After carefully considering the Examiner's comments in the Final Office Action, Applicants traversed this rejection in the Reply and Amendment filed pursuant to 37 CFR §1.116 on February 15, 2008.

On March 5, 2008 the Examiner issued an Advisory Action in which 1) the claim amendments filed in the February 15th Rule 116 amendment were entered and 2) the Applicants' arguments that the Parce and Austin references failed (either alone or in combination) to disclose or even suggestion that "the width of the passages increase along then length of the partitioning wall" was addressed.

Applicants have again carefully studied the Examiner's remarks, both in the final Office Action and in the Advisory Action. However, upon such careful consideration the Applicants must again respectfully disagree with the Examiner's conclusion that the presently claimed invention is obvious in light of Parce and Austin. The Applicants earnestly believe that the amended claims presented in the Rule 116 Amendment and subsequently entered by the Examiner define patentable subject matter.

Because of this, and despite the fact that the Applicants presently have the option of appealing the claims to the Board of Patent Appeals and Interferences, the Applicants have instead opted to file a Request for Continued Examination (RCE) and this Submission thereunder

in the sincere hope and expectation that they can reach agreement with the Examiner concerning the patentability of the claims. Applicants therefore incorporate by reference herein the arguments made in the Rule 116 Amendment filed February 15, 2008 and add the following comments.

Claim 1 has been amended solely in order to more clearly define the claimed invention and to reduce the possibility of ambiguity. These amendments do not narrow the claims, and therefore no surrender of the scope of the claims, including the scope of the equivalents of these claims, are to be inferred thereby.

Legal Framework for Analysis of Obviousness

In the recent United States Supreme Court case *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. ___, __ U.S.P.Q.2d ___ (2007), Justice Kennedy affirmed that *Graham v. John Deere*, 383 U.S. 1, 36 (1966) continues to set forth the proper analytical test for obviousness. Pursuant to *Graham*, in an obviousness analysis, “the scope and content of the prior art [at the priority date of the application in question] are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined.” 383 U.S. at 17, 148 U.S.P.Q. at 467. When “a person having ordinary skill in the prior art . . . would immediately see that the thing to do was what” the inventor did, the invention is obvious. *Graham*, 383 U.S. at 24, 148 U.S.P.Q. at 469 (emphasis added).

The Scope and Content of the Prior Art

U.S. Patent No. 5,942,443, to Parce et al. is drawn to a device and method for performing high throughput screening assays of drugs. The devices and method concern continuous flow assays wherein test compounds are injected into a channel, are mixed with bioactive reagents in a fluid stream, and a biological response is automatically detected at a location in a channel downstream from the mixing point. There is absolutely no disclosure of a device having applicability for studying cell motility.

U.S. Patent No. 5,837,115 to Austin et al., concerns electrophoresis methods, and devices for carrying out electrophoresis, capable of being configured to fractionate or separate various substances, including DNA, proteins, polymers, and cells. Importantly, the devices described in Austin will vary according to the material being separated, but, once such a material is chosen the “object of the [Austin] invention is to provide a lattice structure in which the distribution, size and shape of the pore[s] therein are substantially uniform.” Austin col. 4, line 49-52.

The Claims at Issue

Independent Claim 1 (the sole pending independent claim) of the present invention is drawn to a device for studying at least one of cell migration and deformation. The device of claim 1 comprises:

at least two channels defined in the device;

wherein each channel has an inlet and an outlet, and at least three through passages are defined in a partitioning wall separating the at least two channels to allow fluid communication between the at least two channels,

wherein the at least one partitioning wall comprises:

two wall sections separated by a gap therebetween; and

at least two partitioning elements that divide the gap into said at least three passages,

wherein the partitioning elements are unevenly spaced apart to form passages of widths that vary along the length of the partitioning wall, and

wherein the widths of the passages increases along the length of the partitioning wall.

Analysis

As the Examiner has acknowledged, both in the final Office Action and in the Advisory Action, neither Parce nor Austin disclose the present claimed device. In particular, although not exclusively, neither of the cited references disclose a device in which the width of the passages increase along the

length of the partitioning wall. Parce and Austin are thus advanced as defining the state of the art when the present patent application was filed.

The Advisory Action indicates that Austin discusses a sorting apparatus for studying the migration of cells; however the sorting apparatus of Austin is described as primarily a sorting apparatus for studying the migration of microstructures, which may include cells, viruses, macromolecules or minute particles in a fluid medium. See Austin, abstract. This is an important distinction, because Austin also discloses that the dimensions of obstacles in the sorting device “can be changed and designed to be as desired depending upon the type and size of microstructure to be sorted, the design of the array, and the type of obstacles in the array.” Id. at column 10, lines 59-62.

The “dimensions” of the obstacles are defined in Austin as height (H), length (L), and width (W). Additionally, “each of the obstacles 39 are separated from an adjacent obstacle 39 by a predetermined separation distance Sd.” Id. at column 10, lines 52-53 (emphasis added). Sd is this defined as the distance by which each obstacle is separated from an adjacent obstacle. By definition, therefore, Sd cannot vary in a single device, since in that case “each” obstacle would not be separated from an adjacent obstacle by a single value. Therefore, Sd is a constant value in each sorting apparatus of Austin.

That varying Sd in a single sorting apparatus is not described or suggested by Austin is made clear by Austin’s disclosure of values for Sd. Austin says “Sd will vary depending upon whether the migration of microstructures through pores 54 are DNA molecules, viruses and bacterial cells or mammalian cells. For migration of DNA molecules, the separation distance Sd is within the range of about 0.01 microns to about 20.0 microns. For migration of viruses and bacterial cells, the separation distance Sd is within the range of about 0.01 microns to about 1.0 micron. For migration of mammalian cells the separation distance Sd is within the range of from about 1.0 micron to about 50 microns.” Austin, paragraph bridging columns 10 and 11. Thus, Austin indicates, not that Sd may vary in a single device, but to the contrary: that each device has a specific Sd value depending upon the size of the microstructure to be sorted.

Finally, any question as to whether S_d is a constant value in each sorting device described by Austin is answered by Austin's statement that "an important aspect of the apparatus of the present invention is that not only is the pore size of the arrays known, but it is also constant and reproducible." Austin, column 11, 26-29. As shown in Fig. 4A and described in the specification of Austin at column 11, lines 20-26, the pore size of the arrays "is defined by the height H and the separation distance S_d between the obstacles." *Id.* Therefore, since the pore size is constant, but the separation distance is constant as well.

Finally, even if Austin had disclosed "varying" S_d in a single device, absolutely nothing in Austin suggests that the width of passages in the device increase along the length of the partitioning wall. There are many ways in which S_d may be envisioned to "vary" in a single device. Without limitation of the many options available to a person of ordinary skill in the art, the width and/or height, and/or length of a passage may randomly vary, the width and/or height, and/or length of passage may be constant along a segment of the partitioning device, and then change to a larger or smaller value, the width and/or height, and/or length of passage may decrease along the length of the partitioning wall, the width and/or height, and/or length of a passage may increase along the length of the partitioning wall, etc. The Examiner has pointed to absolutely nothing in either of the cited references or their combination that suggests or even hints to a reason that a person of ordinary skill in the art would choose to make a device wherein the widths of the passages increases along the length of the partitioning wall. Although applicant believe this Submission conclusively demonstrates that the present claims are not obvious, if this rejection is repeated Applicants respectfully ask the Examiner exactly where such teaching or suggestion appears. In this regard, Applicants note that, pursuant to MPEP 2144.03 "it is never appropriate to rely solely on "common knowledge" in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based. *In re Zurko*, 258 F.3d 1379, 1385, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001) (The USPTO 'cannot simply reach conclusions based on its own understanding or experience-or on its assessment of what would be basic knowledge or common sense. Rather, the [USPTO] must point to some concrete evidence in the record in support of these findings.')

Evidentiary support is also required to support an allegation of obviousness. Although a formulaic "rigid" application of the teaching, suggestion, and motivation (TSM) test was rejected by the

United States Supreme Court in *KSR*, the United States Court of Appeals for the Federal Circuit has recently explained a more flexible TSM test is still fully applicable to an obviousness analysis. As the court explained on *Ortho-McNeil*, “a flexible TSM test remains the primary guarantor against a non-statutory hindsight analysis. . . [a]s the Supreme Court suggests. . . the TSM test, flexibly applied, merely assures that the obviousness test proceeds on the basis of evidence.” *Ortho-McNeil*, paragraph bridging pages 10 and 11.

There is therefore no basis of record upon which a person of ordinary skill in the art, being acquainted with the disclosures of Parce and Austin and lacking the benefit of hindsight knowledge of the disclosure of the present patent application, could reasonably conclude that the invention claimed in the present application is predictable or otherwise obvious.

CONCLUSION

For the reasons stated above, the claims are now believed to be in condition for allowance, and Applications respectfully request a Notice to that effect.

A three month extension of time is sought and a check for the amount of the extension fee is enclosed. No additional fee is thought due in connection with the present communication. However, if any additional fee is now due, please use Deposit Account 50-4004 or the payment of such deficiency, or to credit any over payment.

Respectfully submitted,

Date: _____

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